

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-340883

(43)Date of publication of application : 08.12.2000

(51)Int.Cl.

H01S 5/125

(21)Application number : 11-147560

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(22)Date of filing : 27.05.1999

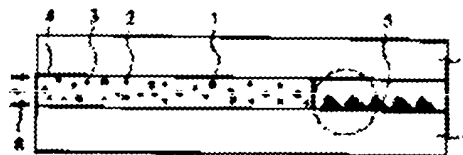
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(54) MULTIWAVELENGTH OSCILLATING OPTICAL SEMICONDUCTOR DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To implement stable and simultaneous oscillation of a plurality of different wavelengths without making the structure of an element large, by arranging a semiconductor gain waveguide, which has a plurality of quantum boxes each having a different size within an active region thereof, and a reflecting mirror which has a high reflectance with respect to a plurality of discrete wavelengths, in series with each other.

SOLUTION: A semiconductor gain waveguide having a number of quantum boxes 1 to 3 each having a different size within an active region 4 thereof, and a reflecting mirror 5 having a high reflectance with respect to a plurality of discrete wavelengths are arranged in series with each other. As the above-mentioned reflecting mirror 5, a distribution reflecting mirror 5 wherein diffraction gratings, each having a gradually varied pitch, are cyclically formed is used. Further, the quantum boxes 1 to 3 are either quantum boxes 1 to 3 based on a Stranski-Krastanow mode, or quantum boxes 1 to 3 which are self-structured by an atomic layer epitaxy method. The quantum boxes 1 to 3 whose diameters are not uniform are formed at a high density, whereby multiwavelength oscillation can be implemented, and the intensity of multiwavelength oscillation light 8 is improved.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]